

**State of Florida
Department of Financial Services
Division of Investigative and Forensic Services
Bureau of Fire, Arson, and Explosives Investigations**

Origin and Cause Report

CASE NUMBER:

19-1825

FHP CAD # DFS419OFF000213

SYNOPSIS

On July 6, 2019, Plantation Fire Department (PFD) and Plantation Police Department (PPD) requested Bureau of Fire, Arson and Explosives Investigations (BFAEI) detectives and assets to assist in the investigation of an explosion at 1025 S. University Drive in Plantation Florida. On arrival, Lead Detective Denson was advised an explosion had leveled the west end of one building and severely damaged a neighboring building. Twenty-two persons were reported transported to nearby hospitals two of whom had severe injuries. During this date, operations were concentrated on locating and treating any additional injured and preventing additional life safety incidents. The scene was held by PD and FD units on scene for additional BFAEI personnel to respond. Investigative efforts began on the morning of July 7, 2019.

July 7th, the immediate area was fenced off and Plantation Police were posted at all entry points securing the scene for investigators. The Forensic Investigative Support Team (FIST) responded and an Origin and Cause (O&C) team under Lieutenant Stacy McIntyre was formed. Investigative operations began, in earnest on July 7, 2019 at 0800.

This investigation continued utilizing personnel from Plantation Police and Fire Departments, the Bureau of Alcohol Tobacco and Firearms, Bureau of Insurance Fraud (BIF) and Bureau of Fire, Arson and Explosion Investigations until July 11th.

Specialists were utilized from TECO gas company, Plantation Building, Electrical, Code and engineering departments as well as State experts in gas delivery and structural engineering. Special and heavy equipment from BFAEI was utilized including heavy equipment from multiple offices, scene truck and the FIST team under Captain Roman.

All visible aspects of the scene were documented photographically by Plantation Crime Scene Technician Leanne Perez and BFAEI Detective Ozzie Estrada. Drones were also used for aerial documentation by Plantation Fire Department.

At the request of BFAEI detectives, Plantation Crime Scene recovered 23 items of possible evidence from the south side of the blast site. Additionally, 9 sections of natural gas pipe were identified and impounded by BFAEI Plantation. All other evidence was documented, photographed, processed where possible and released with the scene.

As of July 30, 2019, this case remains under investigation.

PARTICIPATING FIRE INVESTIGATORS:

Captain Ross Holt (Regional Commander)

Captain P. Roman (FIST Team Commander, O&C)

Detective Travis Denson (Case Agent, O&C)

Origin and Cause Team

Lieutenant Stacy McIntyre (O&C Supervisor)

Detective Howard Bennett (O&C Lead)

Detective Danny Yeager (Safety Officer)

Detective Ken VanVelsor (O&C)

Detective Christopher Precious (O&C, Scene Interviews, Scene Documentation)

Detective Dan Koehler (Assisting Agent)

Detective Jordan Craven (Assisting Agent)

Detective Bryan Dietrich (Scene Documentation)

Detective Ozzie Estrada (Scene Documentation)

Detective Paul Snider (Assisting Agent)

Plantation Police Department

Detective Marshall Clark (Liaison with Plantation PD O&C)

Leanne Perez (Plantation PD Crime Scene)

Plantation Fire Department

Captain Barry Stearns (Liaison with Plantation FD, O&C)

WITNESS REPORTS:

Fire Discovery: (See Primary Investigation Report)

First Arriving Official(s): (See Primary Investigation Report)

Fire Suppression: No Fire Suppression was reported to the O&C Team

SCENE DESCRIPTION

The scene is a commercial structure with multiple businesses running east and west immediately west of South University Drive in Plantation. The Broward County Property Appraiser lists the building as a single-story structure comprising 28120 square feet enclosed, divided into 11 separate commercial spaces. The enclosed portion of the building is 80 feet deep (north to south) with some variations for design and 352 feet wide (east to west.)

The construction is listed as masonry and observation was made of walls comprised of CBS block and a finished masonry façade. The roof was observed to be metal pre-made joist and girder system supporting corrugated metal roof to which was applied standard tar-based shingle and a synthetic material final layer.

All door and window positions are interpreted from supplied photographs and building diagrams as the structures west end was damaged in the incident to the extent of removing interior and exterior walls in the western most 3 businesses.

The scene also includes a multi-story building whose frontage faces east. This building includes a parking garage directly across from the primary scene and the building was severely damaged in this incident. An extensive search of this building concluded observable damage was an extension of the blast in the adjacent building and was excluded as an origin point for the Origin and Cause investigation.

Additionally, this scene also includes outdoor areas including parking areas, trees, lighting and multiple parked cars. These vehicles and features were damaged by the blast and debris and were documented photographically and for position relative to the point of origin. This extended south for over 240 feet and north for over 350 feet. This debris field extended over S.W. 10 Street and into the parking lot servicing 810 and 813 S. University Dr.

BLAST SCENE EXAMINATION

On July 6th, first responders arrived at this scene. Over 22 persons were determined to be injured directly or indirectly from this incident and were transported to local hospitals. The scene was secured by local police agencies while secondary and tertiary searches were conducted for additional injured persons or potential ongoing threats. The scene, including the debris field and an area beyond it, was enclosed by chain link fencing and access was controlled by Plantation police officers at the outer perimeter with Plantation Fire department maintaining control of the interior.

On July 7th, BFAEI detectives including detectives from the Plantation office under Captain Ross Holt and the FIST team under Captain Phil Roman moved in command vehicles and heavy equipment. BFAEI was supplemented by the Bureau of Insurance Fraud (BIF) detectives who conducted interviews and assisted with scene security. A command post was established in a garage on the northern perimeter.

EXTERIOR OBSERVATION:

On July 7th, Detectives from BFAEI, BIF and Plantation Police Department (PPD) began conducting line/article searches on the south side of the blast site. These searches were implemented to identify and collect evidence from the outer perimeter inward toward the blast site. This area is primarily a parking lot necessitating a grid search pattern and the search area was bordered to the south by uninvolved structures (primarily a supermarket) to the west by the structure containing businesses, parking garages (img_1931 and img_1932) and a multi-story LA Fitness gym (img_1878 thru img_1882), all damaged in the incident to the east 1 ½ the distance of the visible debris field and to the north by the south curb of the involved structure. The electrical meter and gas meter were identified north and north east of the business location. (img_2107, img_2086 thru img_2093).

The south area search identified and recovered possible pieces of the natural gas system as well as possible device components (power, wiring switches and containment vessels) and 23 items were photographed and impounded by PPD.

The north area search started in the parking area servicing 810 S. University Drive and again utilized a Line search method in a grid pattern. Several items were identified and collected including doors, pipes, duct work and pieces of package air conditioning units. Items of a defined type (i.e. air conditioners, duct work, gas pipes, entry/exit doors, alarm components) were separated and stored separately to assist in identification and possible reconstruction.

Several Line searches were needed to search SW 10 Street and heavy equipment was used as large sections of walls and roofs were spread across this road. Items of a defined type (i.e. air conditioners, duct work, gas pipes, entry/exit doors, alarm components) were separated and stored separately to assist in identification and possible reconstruction.

During this search items showing signs of fire or heat damage were also separated (Img_2648 thru Img_2654). These were primarily ductwork insulation, filters and components. No sign of involvement with fire was observed on any items not internal to the air conditioning ductwork.

Following line searches, BFAEI heavy equipment was used to inspect under heavy structural pieces and to clear SW 10 Street. Additional items (package air conditioning components and gas piping) was recovered during this effort and separated.

Detective Precious assisted in interviews with TECO officials and verified the route from the meter to the business for natural gas piping (Img_2877 thru Img_2906).

Dash Cam video was retrieved from a mini-van FI Tag # SKZ16. The video showed the event occurring on the dash cam on July 6, 2019 at 11:28:39. The explosion was confirmed to have occurred at the former PizzaFire Restaurant (Img_2055 thru Img_2077)

On July 8th the street between the blast scene and the damaged three-story building to the west was layered and cleared. Searches of the roofs of the adjoining building were conducted and article searches were conducted to the curb surrounding the blast site building. BIF detectives began clearing vehicles in the south parking area which was followed by additional searches and the clearing of heavy debris with BFAEI heavy equipment.

An area north of the 3-story building was cleared for the separation of package air conditioning components.

On July 9th heavy equipment was contracted and moved into the scene to clear several package air conditioning units which had been damaged but retained most of their components. These units were numbered, separated, and placed into parking spaces west of the blast scene. Heavy debris was moved by contractors and inspected by BFAEI investigators. Structural experts, natural gas experts and plumbers assisted in assessing the recovered components to identify their function and possible origin (Img_2086 thru Img_2093 and supplement report 19-1825/3).

The door that was identified as the rear door of the business (located north of the scene on July 7) was documented showing the door was secure at the time of the incident (Img_2387). A search of latent prints by PPD was met with negative results.

INTERIOR OBSERVATION:

On July 10th, teams of BFAEI investigators used blast patterns, building damage assessment, and the warping, bowing and bending of remaining structural vertical I-beams to determine the ignition area of the initial blast. This was determined to have occurred in the northern half of the western most business of this structure.

BFAEI investigators began reconstructing a package air conditioning unit whose components were found in areas north east of the blast site. All components for this unit (referred to as RTU 5) were recovered in a straight line north east of the blast site to the parking area west of 813 S. University Drive. When placed back in their approximate relationships it was noted that all the panels of this unit bulged outward from a center point. The central blower, its motor and duct were not recovered. This was the only air conditioner which suffered this type of damage. (Img_2648 thru Img_2654). See Detective VanVelsor supplement report 19-1825/8 for further.

Natural Gas flammability is in the range of 4.5% to 15% with a specific gravity between 0.590-.719. Typical Air at sea level would be a baseline specific gravity of 1.0. NFPA 921 2017, page 241 and Table 23.8

BFAEI detectives from the O&C team utilized experts to identify gas piping recovered in searches of the debris field. Utilizing information from Ed Walker of Marlin Plumbing (the plumber who built out the gas system for the incident location), Lt. McIntyre was able to identify all of the 1-inch gas piping used from the TECO gas meter on the structures north side to the point where it should have been stepped down to $\frac{3}{4}$ inch pipes in the businesses cooking area. These pipes were numbered by Detective Dietrich of the BFAEI Plantation office and placed in their respective relationships. First in the separated area but then on the scene where they were photographed by Detective Estrada and by PFD drone cameras. Three valves were identified in this gas line, one main meter shut off on the gas provider side, another just past the meter on the customer side, and another valve going into the business on a section of pipe on the exterior north wall of the structure (also customer side) prior to the blast. All 1-inch pipes through the exterior wall and into the cooking area were located and identified. With the assistance of Mr. Walker, it was determined that no 1-inch pipes, interior to the building, were equipped with valves or other devices to stop the flow of gas. All valves were installed in $\frac{3}{4}$ inch

gas pipes or flexible lines. Despite multiple searches no 3/4-inch gas pipes were located in the blast area while all of the 1-inch pipes in this area were recovered and identified. All the identified gas pipe was observed to have been broken cleanly at a connection point (I.E. elbow or extension fitting) with the exception of one piece that would have exited the wall for the appliance (Img_2911 thru Img_2960). No gas ball valves, regulator, T-connector, or extension was located that would have been needed to operate the last known appliance in that area (dual burner pizza oven).

AREA OF ORIGIN:

On July 10, BFAEI investigators hand searched the blast area interior to the building. Floor sections were cleared with hand tools and debris was removed using heavy equipment. When the floor was clearly visible, I observed no sign of fire. There was no sign of an easily recognized crater. This was consistent with the higher damage to the vertical structural I-beams some of which were bowed several feet from the floor consistent with a non-seated or elevated explosion (Img_2728 thru Img_2758).

Measurements were made of damage to standing vertical supports to determine the epicenter of the blast in this incident. Detective Bennett collected 9 samples at this scene, photographed by Detective Estrada.

Evidence:

Detective Bennett collected the following samples:

1. Explosion scene debris from floor north of support LAB-BFS
2. Debris from explosion scene from floor south of support LAB-BFS
3. Debris from explosion scene from north entrance LAB-BFS
4. Debris from floor at south entrance LAB-BFS
5. Tile from floor in seat area LAB-BFS
6. Material from A/C duct panel LAB-BFS
7. Piece of formed A/C duct panel LAB-BFS
8. Remains of air filter LAB-BFS
9. Floor tile from protected area LAB-BFS

All above samples were placed into 1-gallon, clean evidence cans and sent to the Bureau of Forensic Services for testing.

Exposures:

See Primary Investigation Report for full list of exposures.

Number of Fatalities and/or Injuries:

No Fatalities were reported to the team and over 22 injured were indicated. See Primary Investigation Report for details.

Estimated Value and Loss:

To Be Determined

Weather:

Weather was a non-contributory in the cause of this explosion. Temperatures were in the 90s with light wind out of the NE. A lightning strike analysis indicated no lightning at the time of the incident. Lightning was noted in the preceding 12 hours with the closest activity to the scene was a cloud to cloud strike seven miles from the scene effectively ruling out any errant strikes (See also 19-1825/1).

CONCLUSION

- The incident was caused by an explosion of natural gas being delivered into the building by the permitted piping for the prior business tenant PizzaFire.
- The ignition source was likely electrical from an HVAC unit that was being utilized in the vacant business.
- The gas was able to enter the structure due to an open unrestricted gas line.
- Either the ball valve at the rear of the business or the ball valve on the top side (customer side) of the meter was turned on the day of incident at shortly after 7AM. The circumstances that precipitated this is unknown at this time.

REPORT STATUS

This case remains open and under investigation. The author reserves the right to update this Origin and Cause report if additional information is located or discovered that would contribute to changes in the listed findings.